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ELECTRONIC DATA INTERCHANGE

Note by the Secretariat

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INTRODUCTION

1. Pursuant to a decision taken by the Commission at its twenty-fifth session [1/], in 1992, the Working Group on Electronic Data Interchange devoted its twenty-fifth to twenty-eighth sessions to the preparation of the draft UNCITRAL Model Law on Legal Aspects of Electronic Data Interchange and Related Means of Communication (reports of those sessions are found in A/CN.9/373, 387, 390 and 406). The text of the draft Model Law, together with a compilation of comments by Governments and interested organizations (A/CN.9/409 and Add. 1 to 3) was placed before the Commission at its twenty-eighth session for final review and adoption.

2. At its twenty-ninth session, the Working Group considered a draft Guide to Enactment of the Model Law (the report of that session is found in A/CN.9/407). The Working Group also considered in the context of a general debate on possible future work the issues of incorporation by reference and of negotiability of rights in goods in an electronic environment. As regards incorporation by reference, the Working Group had before it two proposals for a draft provision, one submitted by the observer for the International Chamber of Commerce (A/CN.9/WG.IV/WP.65) and another submitted by the United Kingdom of Great Britain and Northern Ireland (A/CN.9/WG.IV/WP.66). After discussion, the prevailing view was that the issue of incorporation by reference was not mature for inclusion in the Model Law and deserved further study. A view was expressed that the issue should be addressed in the context of future work on negotiability of rights in goods (A/CN.9/407, paras. 100 to 105).

3. With respect to the issues of negotiability and transferability of rights in goods in an EDI context, the Working Group had before it two brief notes, one submitted by the United Kingdom of Great Britain and Northern Ireland (A/CN.9/WG.IV/WP.66) and another submitted by the United States of America (A/CN.9/WG.IV/WP.67).

4. It was noted that the functions of bills of lading that might be affected by the use of EDI communications included those of serving: (1) as a receipt for the cargo by the carrier; (2) as evidence of the contract of carriage with regard to its general terms and the particular details of vessel, loading and discharge ports, and nature, quantity and condition of the cargo; and (3) as a document giving the holder a number of rights, including the right to claim and receive delivery of the goods at the port of discharge and the right to dispose of the goods in transit.

5. The first two functions could be easily performed by EDI since the receipt for the cargo and information about the contract of carriage could be given by means of data messages such as the UN/EDIFACT messages. However, the third function (as document of title) raised difficulties in an EDI environment since, in the absence of a single piece of paper, it was difficult to establish the identity of the exclusive holder to whom the carrier could deliver the goods without running the risk of being faced with a claim by another party for misdelivery. In that regard, the Working Group noted that a central problem in the use of EDI bills of lading was to guarantee the singularity, or uniqueness, of the message to be relied upon by the carrier for delivering the goods. While any data message could probably be rendered unique through the use of cryptography, the possibility that the message might be fraudulently or mistakenly multiplied could not be excluded. The Working Group noted that solutions to that problem might be found in security, time-stamping or similar techniques or through a central registry in which the holder could register its rights.

6. The Working Group also noted that work on negotiability and transferability of documents of title in goods by EDI means could include establishing a preliminary list of areas of commercial practice to be covered, validating agreements for negotiability and transferability of rights in goods through EDI, establishing criteria for parties to be holders in due course for the transfer of rights in goods or subsequently to negotiate such rights through EDI, determining the effect of negotiation of documents of title in EDI, establishing default rules for allocation of risk and electronic registries. With regard to electronic registries, it was noted that they could be governmental, central or private. The purpose, the

access, the administrator, the costs, the insurance, the allocation of risks and the security could vary depending on the nature of the registry.

7. The Working Group engaged in a general debate, with a view to identifying the scope of possible future work and issues that could be addressed With regard to the scope of future work, one suggestion was that the work should cover multimodal transport documents of title since they essentially fulfilled the same functions and raised similar issues. Another suggestion was that, while work could include transport documents of title in general, particular emphasis should be placed on maritime bills of lading since the maritime transport area was the area in which EDI was predominantly practised and in which unification of law was urgently needed in order to remove existing impediments and to allow the practice to develop.

8. In support, it was pointed out that EDI messaging was currently restricted to the exchange of information messages in the North Atlantic maritime routes and could not develop without the support of a legal regime that would validate, and provide certainty about, transport documents in electronic form. For example, it was stated that there was a need to facilitate delivery of the cargo at the port of discharge without production of a paper bill of lading, which was often necessary for a number of reasons. One reason was that the cargo might reach the port of discharge before the documents necessary for delivery. Another reason was that often the buyer had to receive delivery and sell the cargo in order to be able to pay the price of the cargo and the freight. In addition, it was stated that there was a need to remove the legal uncertainty as to who bore the risk of the cargo not corresponding to its description when discharged. It was pointed out that usually the shipper provided the description of the goods and the bill of lading included a disclaimer that the description was that of the shipper; such disclaimer clauses were not always valid. Moreover, it was stated that there was a need to establish a functional equivalent replicating the uniqueness of the paper bill of lading, which was essential for its function as a title document.

9. Other suggestions were to address all documents of title covering tangible goods (e.g., warehouse receipts), or all documents of title covering tangible and intangible goods, or all negotiable (or even non-negotiable) instruments. In opposition to those suggestions, it was pointed out that covering such a broad range of documents would complicate work since the functions of the respective documents were different, which would make the elaboration of specific rules necessary.

10. After discussion, it was agreed that future work could focus on EDI transport documents, with particular emphasis on maritime electronic bills of lading and the possibility of their use in the context of the existing national and international legislation dealing with maritime transport. After having established a set of rules for the maritime bills of lading, the Working Group could examine the question whether issues arising in multimodal transport could be addressed by the same set of rules or whether specific rules would need to be elaborated.

11. The Working Group then turned to a discussion of possible issues that could be addressed in the context of future work on maritime bills of lading. A number of issues were mentioned. One issue was to ensure the uniqueness of an electronic bill of lading that would allow its "holder" to dispose of the cargo in transit by electronic means while protecting the carrier from the risk of misdelivery. A number of possible ways to address that issue were suggested, including private keys to be used in communications from party to party, electronic certificates, smartcards and registries. With regard to registries, it was pointed out that a legal regime would need to be devised addressing issues such as subject of registration, parties that could register, parties that would have access to the registry and towards whom the registration could produce effects, confidentiality, accuracy and completeness of the information registered, liability for errors and effects on third parties.

12. Another issue was the definition of the holder in an EDI environment. It was pointed out that in a paper context the holder was defined on the basis of physical possession of the paper bill of lading and

was protected against good faith acquisition of rights in the goods by third parties in that possession of the bill of lading functioned as notice to third parties. In an EDI environment, where possession was not possible, the holder might be protected by other means (e.g., registration, use of public and private key sets) or might not be protected at all. Another issue involved the rights and obligations of the holder and the issuer of EDI transport documents (e.g., right of the holder to give instructions in transit and obligation of the issuer to receive and execute those instructions). It was pointed out that, in a paper-based environment, the rights of a holder were based on three principles: (1) the bill of lading was conclusive evidence of title in the goods only after endorsement (conclusive evidence rule); (2) the endorsee was the only party entitled to claim delivery of the cargo at the discharge point; and (3) only the endorsee was entitled to instruct the carrier to vary the contract and make another endorsement. In this respect, it was stated that negotiability needed to be studied in the context of trade law, security law and transportation law. It was explained that property would not be of use if acquired under trade law but effectively lost under transportation law because no right of stoppage or control could be exercised.

13. In addition, it was pointed out that the holder could have a right to possess the goods, a property right in the goods, or a right to receive delivery of the goods arising from a sales contract. It was explained that from the point of view of the carrier the most important question was who had possessory title in the goods, in other terms, to whom should the carrier deliver the goods. Yet another issue was the allocation of liability among the shipper, carrier, consignee and, possibly, a registry.

14. Other issues suggested for study were: the effects of transfer of EDI transport documents on third parties (e.g., when transfer is effective towards the carrier, third parties in the chain of endorsees, third parties not shown in the EDI bill of lading); the rights of the rightful holder in case of a wrongful transfer of the goods and the rights of the transferee in case its title proved to be defective (subject to other parties' rights); timeliness of transfer in an EDI environment; relative priority among multiple claimants of the same cargo; timeliness of messages (e.g., some messages related to precontractual terms might create rights and obligations); incorporation by reference; issues of security (principles of identification, authentication, integrity, non-repudiation) designed to promote negotiability in an open EDI environment. It was stated that the issues of security should be considered with respect to a broad range of issues regarding negotiability. In connection with its discussion of security issues, in particular the use of cryptography, the Working Group agreed that possible future work by UNCITRAL should not affect mandatory rules of national legislation adopted for public policy reasons in certain States to restrict the use of cryptography or the export of cryptography-related techniques.

15. After discussion, the Working Group requested the Secretariat to prepare a background study on negotiability and transferability of EDI transport documents, with particular emphasis on EDI maritime transport documents, taking into account the views expressed and the suggestions made with regard to the scope of future work and the issues that could be addressed. A number of other topics were suggested for inclusion in the study, including a report on the potential problems for the use of EDI in maritime transport under existing international instruments and a report on the work undertaken by other organizations in related areas of work. In that connection, the view was expressed that work undertaken within CMI, or the BOLERO project, were aimed at facilitating the use of EDI transport documents but did not, in general, deal with the legal effects of EDI transport documents. It was stated that particular attention should be given in the study to the ways in which future work by UNCITRAL could bring legal support to the new methods being developed in the field of electronic transfer of rights (A/CN.9/407, paras. 106 to 118).

16. At its twenty-eighth session, in 1995, the Commission adopted the text of articles 1 and 3 to 11 of the draft Model Law. At the close of the discussion on draft article 11, the Commission noted that it had not completed its consideration of the draft Model Law and decided to place the draft Model Law, together with the draft Guide to Enactment of the Model Law, on the agenda of its twenty-ninth session to be held in New York from 28 May to 14 June 1996. It was agreed that the discussion should be

resumed at the twenty-ninth session of the Commission with a view to finalizing the text of the Model Law and adopting the Guide to Enactment at that session.

17. With respect to future work in the area of electronic data interchange, the Commission noted that, at its twenty-seventh session, in 1994, general support had been expressed in favour of a recommendation made by the Working Group at its twenty-seventh session that preliminary work should be undertaken on the issue of negotiability and transferability of rights in goods in a computer-based environment as soon as the preparation of the Model Law had been completed. It was also noted that, on that basis, a preliminary debate with respect to future work to be undertaken in the field of electronic data interchange had been held in the context of the twenty-ninth session of the Working Group (for the report on that debate, see A/CN.9/407, paras. 106 to 118).

18. After discussion, the Commission endorsed the recommendation made by the Working Group that the Secretariat should be entrusted with the preparation of a background study on negotiability and transferability of EDI transport documents, with particular emphasis on EDI maritime transport documents (see above, para. 15). The Commission expressed the wish that the requested background study, for the preparation of which the cooperation of other interested organizations such as CMI might be sought, would provide the basis on which to make an informed decision as to the feasibility and desirability of undertaking work in the area.

19. This note contains a preliminary study of the issues of transferable bills of lading in an electronic environment. It was prepared taking into account the work of other organizations, in particular the various reports on the form of bills lading considered by the International Academy of Comparative Law at its XIVth Congress. Cooperation of the Comité Maritime International was also sought and this note reflects the result of a meeting of an ad hoc group of experts which brought together experts from CMI and the Secretariat of UNCITRAL. [2/]

I. BILLS OF LADING AND OTHER MARITIME TRANSPORT DOCUMENTS

A. In a paper-based environment

20. It should be noted that developments in the present section are not intended to provide a detailed analysis of bills of lading and other maritime transport documents but merely to describe the functions performed by such documents and the requirements that were established in a paper-based environment for the performance of such functions. Requirements as to the form of such documents may result from law or from practice, and may affect legal relationships between the various parties to the contract of carriage and between the parties involved in the underlying sale transaction.

21. Many comparative law developments in this section reflect the proceedings of a session entitled "Current developments concerning the form of bills of lading", which took place in the context of the XIVth International Congress of Comparative Law held in Athens (Greece) from 31 July to 6 August 1994 by the International Academy of Comparative Law (hereinafter referred to as "the Academy") with the participation of leading scholars in the field of maritime transport. [3/] [4/] With respect to developments involving the use of electronic communications to replicate the functions of transferable bills of lading, the Academy noted that what was to be expected was not a mere evolution of the form of bills of lading but the creation of new species of bills of lading.

1. Bills of lading

(a) General remarks and definitions

22. Throughout this note, the terms "bill of lading", "transferable bill of lading" or "ocean bill of lading" refer to a document used in the international carriage of goods by sea and defined by paragraph 7 of article 1 of the United Nations Convention on the Carriage of Goods by Sea, 1978 (hereinafter referred to as "the Hamburg Rules"). Under that definition, also used in the ECE/FAL Recommendation No.12 ("Measures to Facilitate Maritime Transport Document Procedures"), "'bill of lading' means a document which evidences a contract of carriage by sea and the taking over or loading of the goods by the carrier, and by which the carrier undertakes to deliver the goods against surrender of the document. A provision in the document that the goods are to be delivered to the order of a named person, or to order, or to bearer, constitutes such an undertaking". In most if not all legal systems, traditional bills of lading perform three distinct functions. First, a bill of lading is a receipt for the goods, i.e., an acknowledgment that the carrier has received the cargo from the shipper for shipment. Second, the bill of lading is evidence of the contract of carriage between the parties. Third, a transferable bill of lading serves as a document of title to the cargo.

23. In addition to applicable legislation of national origin, the legal regime of ocean bills of lading are covered by a variety of international conventions such as the International Convention for the Unification of Certain Rules of Law relating to Bills of Lading, signed in Brussels on August 25, 1924 (hereinafter referred to as "the Hague Rules"), which was amended on February 28, 1968 by the Protocol to Amend the International Convention for the Unification of Certain Rules of Law relating to Bills of Lading (hereinafter referred to as "the Visby Rules"), the Hamburg Rules and the United Nations Convention on International Multimodal Transport of Goods adopted in 1980.

(b) Bill of lading as receipt for the goods

24. In the first instance, a bill of lading is an ordinary receipt by the carrier evidencing that the goods have been received from the shipper in a certain order and condition. [5/] It may be noted that the receipt function, which also entails the promise to deliver the goods to the consignee at the place of destination is effective only in the context of the shipper/carrier relationship. That function is not specific to bills of lading and may also be performed by other transport documents that may be created in the context of the legal relationship between the shipper and the carrier of the goods. The receipt function performed by a bill of lading entails form requirements as to its written form and the use of signature. In that respect, a bill of lading is not substantially different from any other written and signed document.

25. Neither the Hague/Visby Rules nor the Hamburg Rules expressly state that a bill of lading for the carriage of goods by sea must be written on paper or manually signed. However, both Rules impose on the carrier the duty to "issue" a bill of lading upon the demand of the shipper, refer to "documents", and list the information that must be stated in the bill of lading. Article 1 of the Hamburg Rules expressly states that "'writing' includes, inter alia, telegram and telex". As to the signature requirement, paragraph 3 of article 14 of the Hamburg Rules states that "the signature on the bill of lading may be in handwriting, printed in facsimile, perforated, stamped, in symbols, or made by any other mechanical or electronic means, if not inconsistent with the law of the country where the bill of lading is issued".

26. Under the laws of many countries a bill of lading must be written and signed by the carrier or the carrier's agent. [6/] Such laws often do not mention the effect that the omission of a written signature has on the validity of a bill of lading. In certain countries, however, a bill of lading without a handwritten signature is null. Under certain national laws, the requirement of a signature may be satisfied by the typed or rubber-stamped name of the signer, accompanied by the signer's seal impression. In actual practice, however, this option seems never to be used in ocean bills of lading. In

other countries, a writing is required but there is no mention of a signature requirement, and the implication is that a signature is not a requisite formality for the validity of a bill of lading. In yet other countries, an unreadable signature on the bill of lading that does not permit identification of the signer cannot be a receipt for the goods; however, it is not certain that the bill of lading is null in such a case.

(c) Bill of lading as evidence of the contract of carriage

27. While the content of the contract of carriage may vary with the various legal rules that may be applicable under national law, it was noted that "the promise to carry and to deliver the goods given by the master or the shipowner constitutes the core of the contract of carriage as evidenced by the bill of lading". [7/] Like the receipt function, the evidentiary function of the bill of lading is not specific to bills of lading. Other transport documents that may be created in the context of the shipper-carrier relationship may perform the same function.

28. Both the Hague/Visby Rules and the Hamburg rules require that a bill of lading issued by the carrier must contain the marks necessary for the identification of the goods; the number of packages or pieces, or the quantity or weight; and the apparent order and condition of the goods. Additional information is often inserted into bills of lading, including: identification of the carrier and of the shipper or consignee; identification of the vessel and its master, of the port of loading, and of the port of discharge; determination of the freight charges and of the number of original bills of lading; reference to the carrier's general terms and conditions; and date and place of issuance.

29. Paragraph (3) of article 15 of the Hamburg Rules states that the absence in the bill of lading of one or more required particulars "does not affect the legal character of the document as a bill of lading provided that it nevertheless meets the requirements" set out in the above-mentioned definition of a bill of lading. However, there may be some uncertainty concerning the effect that the omission of any of the above terms or information has on the validity of a bill of lading. Under the law of certain countries, there are indications that the omission of "essential" [8/] terms renders a bill of lading null, whereas the omission of other terms has no effect on its validity.

30. The content of the contract of carriage as evidenced by the bill of lading may also vary with the intent of the parties. A characteristic feature of a paper bill of lading in its complete form (often referred to as the "long form") is the presence of contract clauses printed on the paper document, often in small print on the back of the document. The long form of the traditional (paper) bill of lading is the one predominantly used in many countries. The carrier's general terms and conditions are ordinarily printed on the reverse side of this form. Short forms of bills of lading commonly incorporate the carrier's general terms and conditions by reference. In many countries, non-transferable bills of lading, like sea waybills, are typically issued in the short form. [9/]

(d) Bill of lading as title to the goods

31. The function of the bill of lading as a document of title is a unique feature of the bill of lading compared with other transport documents used in commercial transactions. As to the legal relationships affected by that function, it should be noted that it is through its function as document of title that a bill of lading produces effects not only in the context of the shipper/carrier relationship where it was created, but also in the context of the carrier/consignee and buyer/seller relationships.

32. When describing that function, it is often said that the bill of lading represents the goods. That representative function makes it possible to trade with the goods during the period of transit through a unique mechanism for the release of the goods. Delivery is due by the carrier only against surrender of the document that represents the goods. As noted by a leading scholar, "The bill-of-lading pattern for releasing the goods builds on a very simple idea. One unique piece of paper has to be produced by the

consignee and thus functions as the key that alone can give access to the hiding-place where the goods are stored ... Against surrender of the document means the simultaneous change of the bill of lading against the goods, described and referred to in the bill of lading at the place of final destination ... From this arrangement, two important consequences follow, building on the symbolic function of the document. It opens up the possibility to trade with the goods also when in transit by using the document as a substitute for the cargo, as the buyer of the bill of lading knows that he finally can change it against the cargo in its physical shape. In principle, this fact also makes it possible for the carrier to know who holds the right to the goods and thus controls the goods". [10/] This feature of a bill of lading is particularly important in the ocean carriage of commodities, such as oil or grain which, due to changing market conditions, may change ownership several times during a single voyage.

33. The functions of the bill of lading as title to the goods raise a number of issues.

(i) Number of originals issued

34. In many countries, for a variety of commercial reasons, multiple originals are routinely issued. Of course, when one of the originals is "accomplished," the others are nullified. However, in such a situation, a valid title to the goods may be held by various parties in various places at the same time. In such a case, there exists an increased risk that the goods be fraudulently claimed during the transit, while the holder of an original bill of lading might still claim delivery of the goods, in good faith, against surrender of the document at the place of final destination of the goods. In order to limit that risk, commercial practice requires the possession of all original bills of lading from the person who claims to have the right to control the goods during transit. Such a practice is recorded, for example, in article 23 (a)(iv) of the Uniform Customs and Practice for Documentary Credits (UCP 500) published by the International Chamber of Commerce. However, it was noted that "as a matter of course, the issuance of many originals creates a risk of disturbing the functions of the bill of lading as title to the goods". [11/]

(ii) Right of control and right to claim delivery of the goods

35. The contract between the shipper and the carrier determines who has what is generally referred to as the "right of control of the goods", i.e., who is entitled to give instructions with respect to the goods in transit and who has the right to claim delivery at destination. The term "right of control" is used as a label indicating the right to give all sorts of new instructions to the carrier as to the fulfilment of the contract of carriage. The contents of the right of control cover such instructions as to stop the goods in transit, including their withdrawal already at the terminal of departure, to unload, to warehouse or to re-route the goods, and to deliver the goods to some other person than the first consignee indicated in the bill of lading at any stage of the transit, as well as to change the place of delivery of the goods. [12/]

36. The shipper (or "consignor") has the exclusive right of control from the moment the carrier takes charge of the goods and the consignor retains all originals of the bill of lading. As soon as the consignor has given away at least one original bill of lading, the consignor loses that right of control. A person who buys one original has the right to demand delivery of the goods as soon as they reach the place of final destination. The right to intervene before that time with new instructions belongs only to the person who holds the complete set of original bills of lading.

37. Apart from its "positive" aspects, the right of control also entails an important "negative" (or "exclusive") aspect. One of the main features of the right of control transferred with the bill of lading is that the person having the right of control must be able to rely on the knowledge that no outsider can interfere with the execution of the contract of carriage. That exclusive aspect is particularly important for banks and other financial institutions financing the underlying sales contract. If the bank has the right of control, it has security in the goods in a way that is similar to possession of the goods themselves. [13/]

(iii) Link between the contract of carriage and the contract of sale

38. The above-described mechanism of the "right of control" of the goods represented by the bill of lading is often described as linking the contract of carriage between the shipper and the carrier with the contract of sale between the shipper and the consignee. The bill of lading created in the context of the shipper/carrier relationship is an important instrument for the proper execution of the contract of sale in that it commands the right to claim delivery of the goods and the fulfilment of the seller's obligation to deliver the goods. However, under certain national laws, particularly in common law jurisdictions, legal doctrines have created difficulties in conferring independent rights to a party other than the carrier's contracting party and, thus, to bring the consignee into a contractual relationship with the carrier, entitling the consignee to claim the goods. It is in this context that the bill of lading has been recognized as an extremely important tool in international trade, since the possession of at least one original bill of lading would entitle the holder to claim the goods from the carrier. Thus, as noted by a leading scholar, "it is the paper document as such which contains the solution to the problem". [14/]

39. The paper document may also serve another important function, namely to enable buyers of goods to transfer the right to claim those goods from the carrier simply by handing over the paper document to the next buyer. By the use of bills of lading, successive transfers may be achieved. That so-called transferability function of the bill of lading has been internationally recognized, resting upon statutory enactments in bill-of-lading acts or maritime codes. Because rights to the goods may pass from one party to another by the handing over of the bill of lading, in appropriate cases endorsed by the prior holder, a bill of lading does resemble a negotiable instrument. However, the bill of lading is only concerned with the right of the holder to claim the goods from the carrier and not with the other aspects of negotiability. For that reason, the bill of lading is sometimes called a "transferable" or "quasi-negotiable" document. [15/]

2. The need for alternatives to bills of lading

(a) Advantages and disadvantages of bills of lading

40. As noted in the general report of the Academy, the advantages of the traditional bills of lading pertain to: the function of the bill of lading as transferable commercial paper that makes the transfer of rights in the goods easy, especially by endorsement and delivery of the bill of lading; the resulting quality of the bill of lading as reliable collateral for maritime financing and documentary credit; the parties' ability to determine who has title to the goods by virtue of a visual inspection of the bill of lading; the high degree of uniformity in the use of bills of lading forms in international trade; and the inclusion of the terms and conditions of the contract of carriage in the bill of lading itself. [16/]

41. According to the same source, the disadvantages of the traditional bills of lading are linked with: delayed arrival; high cost; fraudulent issuance of bills of lading; and inaccurate or insufficient information.

42. The modernization of the shipping industry has resulted in accelerated arrival of the goods at the destination port, but not in accelerated arrival of the shipping documents. Transfer of the bill of lading and of the right to claim the goods shipped takes considerable time. The arrival of documents at the port of discharge is usually delayed by a detour to a bank along the way for purposes of a documentary credit. Many countries report that delayed arrival of the bill of lading at the port of discharge is a primary problem with the use of traditional paper bills of lading. This creates jams at ports because the carrier cannot rightfully release the goods until the consignee presents the bill of lading. Delays also create additional costs relative to the custody and insurance of the goods. Yet another side effect of the delayed arrival of the bill of lading is the unauthorized release of the goods without presentation of the bill of lading by the carrier or the port authority. This puts the seller in the unenviable position of not having been paid for the released cargo. [17/]

43. Another disadvantage of paper bills of lading is the high cost of issuing and processing the documents. A 1989 report of the Commission of the European Communities estimated that "in the transport industry, the cost of raising conventional documents and the attendant delays involved in their issuance and verification constitute 10 to 15% of total transportation costs." [18/]

44. The ease with which a fake set can be issued is still another disadvantage of traditional bills of lading. A blank form of bill of lading may be used to create and negotiate a fraudulent bill of lading without much difficulty. The defrauder may thus trade in goods that do not exist and he may also obtain bank credit based on nonexistent collateral. Such fraud necessarily entails the forgery of the authorized signatures on the bill of lading. An entire bill of lading may be counterfeited, the signature may be forged, the quantity of the goods may be altered, and the consignor may fraudulently sell the same goods two or three times to different buyers. The above-mentioned examples are by no means exhaustive of the types of fraud that can occur.

45. The inclusion of inaccurate or insufficient information in traditional bills of lading is an ever recurring problem. Discrepancies in bills of lading usually relate to data concerning the goods or the consignee. Such discrepancies delay the release of the goods, because the carrier may have to survey the goods, amend the ship's manifest, and, possibly, amend the bill of lading. A report of the Commission of the European Communities attests to the costly nature of such discrepancies. Costs involved in the completion of documents, inaccuracies in duplication data, and "delays in offices, factories, and at customs account for 10% of the cost of exported finished products."

(b) Substitutes for bills of lading: sea waybills

46. As noted in the general report of the Academy, there is undoubtedly a trend toward an increased use of sea waybills as substitutes for traditional bills of lading. A sea waybill is a non-negotiable document that constitutes evidence of the contract of carriage and of the receipt of the goods by the carrier. It is not a document of title and it cannot be used to transfer ownership of the goods. [19/] A sea waybill need not be presented for taking delivery of the goods; the carrier tenders delivery to the named consignee who need only prove his identity. [20/]

47. Sea waybills enjoy several advantages over traditional bills of lading. They can travel with the goods; they avoid lengthy and complex documentary processes; and they reduce the carrier's risk toward the consignee. Sea waybills, however, have also significant disadvantages. They are not negotiable and, although accepted by banks for documentary credit, they do not afford the security that traditional bills of lading provide. A buyer who has prepaid for the goods faces the risk that the seller may direct the carrier to change the identity of the consignee while the goods are in transit. The shipper always has the right to demand under the Hague/Visby Rules that a traditional "shipped" bill of lading be issued and this renders the sea waybill nugatory.

48. Nevertheless, the popularity of sea waybills continues to increase. In many countries, sea waybills are used as an alternative to traditional bills of lading. Unless transferability is essential for a particular carriage, the use of sea waybills is recommendable for the avoidance of delays and costs associated with traditional bills of lading.

B. In an electronic environment

1. The functional approach

49. Consistent with the approach taken by the Working Group in the preparation of the Model Law, the Working Group may wish to envisage the issues related to maritime transport documents using a functional approach. As an analytical tool, the suggested "functional approach" is also consistent with the approach taken by the International Academy of Comparative Law in its work on the form of bills of

lading. It may be recalled that such an approach, also referred to as the "functional-equivalent approach", is based on an analysis of the purposes and functions of the traditional paper-based requirement, with a view to determining how those purposes or functions could be fulfilled through EDI techniques. For example, with respect to the functions of paper in general, electronic records can provide the same level of security as paper and, in most cases, a much higher degree of reliability and speed, especially with respect to the identification of the source and content of the data, provided that a number of technical and legal requirements are met.

50. A data message, in and of itself, cannot be regarded as an equivalent of a paper document in that it is of a different nature and does not necessarily perform all conceivable functions of a paper document. That is why the Model Law adopted a flexible standard, taking into account the various layers of existing requirements in a paper-based environment: when adopting the "functional-equivalent" approach, attention was given to the existing hierarchy of form requirements, which provides distinct levels of reliability, traceability and unalterability with respect to paper-based documents. For example, the requirement that data be presented in written form (which constitutes a "threshold requirement") is not to be confused with more stringent requirements such as "signed writing", "signed original" or "authenticated legal act".

51. The Model Law does not attempt to define a computer-based equivalent to any kind of paper document. Instead, it singles out basic functions of paper-based form requirements, with a view to providing criteria which, once they are met by data messages, enable such data messages to enjoy the same level of legal recognition as the corresponding paper document performing the same function.

52. In the context of maritime transport documents, the functional approach offers the advantage that it can be used as a tool to analyze a variety of documents, irrespective of whether such documents are transferable or not, such as transferable bills of lading and non-transferable sea waybills. Among the advantages to be expected from legal solutions developed under such a functional approach is the neutrality of such rules with respect to the commercial practices developed in the context of paper-based trade.

2. Legal and technical obstacles to dematerialised transport documents

53. The general report of the Academy noted that the replacement of traditional bills of lading with electronic equivalents presupposes the resolution of the following legal and technological issues: the satisfaction of writing and signing requirements; the probative effect of electronic communications; the determination of the place of contract formation; the allocation of liability for erroneous messages, communication failures, and system breakdowns; the incorporation of general terms and conditions; and the safeguarding of privacy. Among these matters, some have already been addressed in the Model Law, while others may need to be further discussed by the Working Group.

(a) Matters already addressed in the Model Law

54. Among the legal obstacles to the implementation of dematerialised maritime transport documents, those arising from the existence of writing and signature requirements and the probative effect of electronic communications have already been settled in articles 4 to 8 of the draft UNCITRAL Model Law on Legal Aspects of Electronic Data Interchange and Related Means of Communication. Matters pertaining to contract formation in an electronic environment are expected to be settled in draft articles 13 and 14, which remain to be discussed by the Commission at its twenty-ninth session.

(b) Possible issues to be discussed by the Working Group

(i) Negotiability or transferability

55. It was noted in the general report of the Academy that "Surmounting the issues of writing and signature in an EDI context does not solve the issue of negotiability which has been said to be 'perhaps the most challenging aspect' of implementing EDI in international trade practices. [21] Under the legal rules that govern negotiable bills of lading, rights in goods, such as ownership, are conditioned by the physical possession of an original paper document, the traditional bill of lading. That same report noted that "There is generally no statutory means in place by which commercial parties, through the exchange of electronic messages, can validly transfer legal rights in the same manner possible with paper documents." [22] Moreover, "the legal regime of negotiable instruments ... is in essence based on the technique of a tangible original paper document, susceptible to immediate visual verification on the spot. In the present state of legislation, negotiability cannot be divorced from the physical possession of the original paper document." [23] Having noted that "The CMI Rules attempt to obviate the paper title requirement by stating that an electronic transfer 'shall have the same effect as the transfer of such rights under a paper bill of lading'" [24], the report indicates that "the difficulty with this provision is that mandatory rules of law cannot be discarded by mere agreement of the parties, because they serve other useful purposes, such as the protection of third parties. In jurisdictions in which physical endorsement and delivery of a document of title are required for the transfer of the ownership of goods, paperless transactions would be without effect". The report concludes that "as a rule, the creation of negotiable documents of title is a prerogative reserved solely for statutory law." [25] and that "This highlights the need of legislative reform for a successful implementation of electronic bills of lading". [26]

56. It is submitted that, when attempting to devise a functional equivalent to the transferable bill of lading by way of a model statutory provision, the Working Group might decide not to solve all existing difficulties as to the legal regime of paper-based bills of lading. In particular, the Working Group might wish to consider that all the issues regarding the linkage between the contract of carriage and the contract of sale are not currently solved with respect to paper bills of lading. It was noted by a leading scholar that "The transfer of title to goods is a difficult legal problem and one for which there is no international convention or agreement to serve as a common denominator. Indeed, the latest international convention dealing with the sale of goods, the United Nations Convention on Contracts for the International Sale of Goods of 1980, in Art 4(b), expressly declares that it is not concerned with '[the effect which the contract may have on the property of] the goods sold'. Similarly, the rules for the interpretation of the most commonly used trade terms, sponsored by the International Chamber of Commerce [the INCOTERMS] also refrain from dealing with that matter".

57. Should the Working Group decide not to deal with the implications of bills of lading with respect to the ownership of the goods under the contract of sale, and focus its attention on the transferability function performed by the bill of lading under the contract of carriage, its decision would be consistent with the functional-equivalent approach taken during the preparation of the Model Law. It may be recalled that the Working Group decided that the adoption of the functional-equivalent approach should not result in imposing on users of electronic means of communication more stringent standards (and the related costs) than in a paper-based environment.

58. Within the contract of carriage, the bill of lading as title to the goods (as described above in paras), can be characterized as a transferable promise by the carrier to deliver the goods exclusively to the holder of an original statement recorded in a unique document or set of documents. The Working Group may wish to consider that such characteristics constitute a variant, or a specific combination, of characteristics already discussed, at a higher level of generality, in the context of the preparation of the Model Law, especially under the rubrics "authentication" and "original".

(ii) General terms and conditions

59. General terms and conditions are typically found on the reverse side of the long-form paper bill of lading. In the EDI context, data is necessarily compressed, so additional terms and conditions would not normally be transmitted. A solution to that difficulty is "to incorporate the standard terms in a communication agreement between the trading partners." (A/CN.9/333, para. 67) Such agreements are commonly known as master agreements. In the absence of such agreements, substantive law, the course of dealing between the parties, and usage of trade may fill the gaps in the electronic transmission.

60. As the Working Group noted during the preparation of the Model Law, electronic means of communication are not equipped, or even intended, to transmit all the legal terms of the general conditions that were printed on the backs of paper documents traditionally used by trading partners (A/CN.9/360, para. 91). The Working Group may find it appropriate to resume its discussion of the issue of incorporation by reference in the context of bills of lading. As an example of an incorporation clause, the following text discussed in the context of the Working Party on Facilitation of International Trade Procedures (WP.4) of the Economic Commission for Europe, also quoted by a leading scholar, may be considered:

> "The terms of the transport operator's/carrier's standard conditions of carriage (including those relating to pre-carriage and on-carriage) and tariff applicable on the date of taking in charge of the goods for transportation, are incorporated herein as well as any international convention or national law which is compulsorily applicable to the contract evidenced in this document.
>
> "A copy of the transport operator's/carrier's standard conditions of carriage applicable hereto may be inspected or will be supplied on request at the office of the transport operator/carrier or their principal agents." (ECE Document TRADE/WP.4/GE.2/R.114)

(iii) Liability for erroneous messages, communication failures and system breakdowns

61. The general report of the Academy noted that "a question that must be addressed before parties will commit themselves to electronic transactions is who bears the liability for erroneous messages, failures in communications, and system breakdowns (A/CN.9/333, para. 76). Liability must be apportioned in a fair and predictable manner before carriers and other parties to international shipping transactions will accede to the widespread use of EDI". [27/]

62. That report also noted that "one major drawback of the CMI Rules is the absence of provisions governing apportionment of liability". [28/] The report, which was prepared against the background of an earlier draft of the Model Law, which contained provisions on liability, welcomed the guidance provided in draft article 15 of the Model Law under which the parties were liable for direct damage caused by failure to follow the rules, except when the failure was caused by unforeseeable circumstances beyond a party's control. The Working Group may wish to discuss whether it would be appropriate to reintroduce such a rule in the context of provisions dealing with functional equivalents to maritime transport documents. Additional issues to be discussed might involve whether the parties should be exempted from liability for special, indirect or consequential damages and the issue of who is liable in the event of systems breakdown. As noted in the general report of the Academy, "even though a situation may fall under the force majeure exception, someone must bear the burden of the loss, particularly if innocent third parties are involved".

(iv) Privacy

63. The general report of the Academy states that "most major international trading and shipping companies have historically maintained a cloak of secrecy, and would be aghast to have their trading patterns or methods, or pricing, subject to examination by competitors. Because of such concerns, a

single central registry that would accumulate data on all trading would present unacceptable hazards. Indeed, such concerns were part of the reason the SeaDocs experiment failed". [29/] Certain authors, however, believe a central registry system that makes the data accessible to the public is a desirable trait that would increase the secondary market for goods in transit. It has also been suggested that the information in a central bill of lading registry must become public and acquire the legal status of public notice in order to protect banks and other secured lenders who take security interests in goods negotiated under electronic bills of lading. [30/] Privacy concerns do persist. The carrier registry system envisioned by the CMI Rules reduces the privacy concerns to a certain extent because each carrier would only maintain trade data for its own shipments, rather than having all trade data for trades worldwide in one registry. Domestic legislation criminalizing or otherwise punishing unauthorized access, use, or modification of electronic data provides a deterrent against invading another's computerized files. Existing laws do not, however, address concerns over an electronic communications systems that contemplates access of the data in the registry by its members or by the public. For a system of electronic bills of lading to gain widespread acceptance, those privacy concerns must be met.

64. In view of the fact that issues of privacy and data protection have not been dealt with in the Model Law, the Working Group may wish to consider whether specific provisions dealing with those issues might be needed in the context of provisions establishing functional equivalents to maritime transport documents.

(c) Conclusions

65. The following conclusions were reached by the International Academy of Comparative Law in its general report on bills of lading:

> "The main thrust of the national reports and of the general report relates to the use of electronic bills of lading in lieu of the traditional documents. This current development concerning the form of bills of lading has already given rise to a rich technical and legal literature. [...] "National reports discuss, and the general report summarizes, the advantages of electronic bills of lading that are many, including lower cost, higher efficiency, improved security, and speedier delivery of goods at the end of the voyage. Nevertheless, electronic bills of lading are not in use in any of the reporting countries and, [with one exception] [31/], there is no provision for implementation of electronic bills of lading in the near future. The main obstacle is what has been termed "traditional inertia."
>
> "The legal problems that electronic bills of lading involve are few and relate to the need for legislative authorization attributing to electronic communication the function of traditional writing and signature requirements, determining the probative effect of electronically generated prints, and establishing the negotiability of electronic bills of lading. These legal problems may be easily resolved. However, legislative action cannot alone promote the generalized use of electronic bills of lading.
>
> "The use of electronic bills of lading is, essentially, a business rather than a legal decision. The law may provide the legal framework for the function of electronic bills of lading in the same way and with the same effects as the traditional bills of lading. However, business interests will eventually determine whether the availability of, and the economic incentives for, the use of electronic bills of lading outweigh concerns for privacy and the safeguarding of trade secrets, for accuracy of information, and for security of transactions and acquisition. Such concerns call for technological rather than legal solutions". [32/]

II. PREVIOUS ATTEMPTS TO DEAL WITH ISSUES OF BILLS OF LADING IN AN ELECTRONIC ENVIRONMENT

66. During the past few years, many attempts have been made by a number of international organizations, whether intergovernmental or non-governmental, and by various groups of users of electronic communication techniques to solve the problems that arise from the difficulty to reproduce the functions of a traditional paper-based bill of lading in an electronic environment. These attempts have been made using two different approaches: an indirect approach that encourages the use of substitutes to transferable bills of lading and a direct approach that relies on various methods used to reproduce the functions of transferable bills of lading in an electronic environment.

A. The indirect approach: use of substitutes for bills of lading

1. ICC INCOTERMS

67. The willingness to promote the use of substitutes for traditional bills of lading can be noted in the latest revision of the INCOTERMS published by the International Chamber of Commerce in 1990 (ICC INCOTERMS). The traditional reference to bills of lading has been replaced by a reference to "the usual transport document" with examples given, such as a "negotiable bill of lading, a non-negotiable sea waybill or an inland waterway document". Thus INCOTERMS no longer contain a requirement that the maritime transport document must be a transferable bill of lading. The introduction to the INCOTERMS draws specific attention to the fact that: "in recent years, a considerable simplification of documentary practices has been achieved. Bills of lading are frequently replaced by non-negotiable documents similar to those which are used for other modes of transport than carriage by sea. These documents are called "sea waybills", "liner waybills", freight receipts or variants of such expressions. These non-negotiable documents are quite satisfactory to use except where the buyer wishes to sell the goods in transit by surrendering a paper document to the new buyer. In order to make this possible, the obligation of the seller to provide a bill of lading under CFR and CIF must necessarily be retained. However, when the contracting parties know that the buyer does not contemplate selling the goods in transit, they may use CPT and CIP where there is no requirement to provide a bill of lading." The revised INCOTERMS also advance the concept of an "equivalent electronic message" as a replacement for the traditional paper document.

2. Revision of ECE/FAL Recommendation No. 12

68. The Working Party on Facilitation of International Trade Procedures (WP.4) of the Economic Commission for Europe, at its ninth session in march 1979, adopted Recommendation No. 12 "Measures to Facilitate Maritime Transport Documents Procedures". This Recommendation sought a change in official and commercial practice in order to minimize the use of transferable transport documents and encourage the use of alternative sea waybills or other non-transferable transport documents. It also sought to encourage the use of single original, blank back and standard transport documents. At its thirty-seventh session in March 1993, the Working Party approved a new revised Recommendation 12. The revision took into account changes in trade and administrative practices and in documentation as well as developments such as the CMI Uniform Rules and the UNCTAD/ICC Rules on Multimodal Transport.

69. The operative part of the recommendation reads as follows:

> "... [I]t is suggested that the commercial parties should:
>
> "(i) appreciate the advantages and encourage the use of the non-negotiable sea waybill instead of the bill of lading, where goods are not traded in during the course of transit;

"(ii) appreciate the disadvantages of using the negotiable bill of lading when not essential to the commercial transaction and consequent disadvantages, cost and risk of achieving release of the goods at destination against a bank letter of indemnity in the absence of an original bill of lading;

"(iii) welcome the trend on the part of carriers to refer to the terms and conditions of the contract of carriage (the small print on the reverse of a Bill of lading) by reference only (short form/blank back document), noting that such terms and conditions are not negotiable except perhaps in case of a charter and are influenced by the appropriate international conventions;

"(iv) require a negotiable bill of lading - or its electronic equivalent - only in cases where the goods to which it relates are traded in during course of transit, noting the possibilities offered by the registry schemes [...], and that this is a development which takes advantage of the benefits offered by EDI and is of sufficient standing to be attractive to both commerce and administration;

"(v) consider the advisability as an anti-fraud measure of requiring a negotiable paper maritime transport document to be issued in a set of one original only.

"In turn administrative authorities should:

"(i) appreciate the possibility of administrative needs or mandatory demands (including those in domestic law and/or international conventions) being met by the non-negotiable sea waybill in preference to the negotiable bill of lading;

"(ii) consider the possibility of developing legislation making possible the replacement of a paper maritime transport by an equivalent electronic message.

"Both the commercial parties and administration authorities should appreciate the advantages, whether concerning paper transport documents or "equivalent electronic messages", of the use of WP.4/Recommendation No. 8 "Unique Identification Code Methodology (UNIC)" which seeks to simplify trade procedures and give greater security".

B. The direct approach: imitation of bills of lading in an electronic environment

1. The SeaDocs experiment

70. SeaDocs Registry Limited was a London-based Delaware corporation formed by Chase Manhattan Bank and INTERTANKO, an association of independent oil tanker operators, for the purpose of electronically negotiating bills of lading issued for oil shipments. [33/] It has been called "the first serious effort by a major concern to facilitate electronic transfer of negotiable bills of lading". The project, which started in 1986, lasted less than one year. Under the SeaDocs system, the carrier issued a traditional bill of lading. This bill of lading was immediately taken out of circulation and deposited with SeaDocs, which functioned as a depositary-custodian of the paper based original bill as well as a registry of bill of lading negotiations. SeaDocs acted as the agent for all parties in the shipping transaction, with authority to endorse the bill of lading and effectuate transfers of ownership during transit. As agent, SeaDocs also had authority to deliver the original paper bill of lading to the final consignee.

71. Electronic communication entered the picture to effectuate transfers of ownership during transit. When SeaDocs received the original paper bill of lading from the shipper, it issued a "test key" or code to the shipper. When the shipper negotiated the bill of lading, it notified SeaDocs by computer and gave

the buyer a portion of the test key. The buyer would also notify SeaDocs. Only after receiving and testing both messages did SeaDocs record in the registry the name of the buyer as the new owner. SeaDocs also recorded this information on the original paper bill of lading in its possession. When the goods arrived at their destination, SeaDocs transmitted a code to the carrier and to the last owner of record. This code allowed the owner to claim delivery of the goods.

72. SeaDocs did not eliminate paper documents entirely due to the apparent legal difficulties of doing so. In discussions regarding the SeaDocs project before it was implemented, Chase Manhattan Bank maintained that SeaDocs operations would be legal under the current law governing the transfer of bills of lading because "the Registry 'mirrors' current business practices. . . Because they have the documents [i.e., they retain legal ownership of them], the positions of disputing parties would not be affected under the law." Although the SeaDocs project reported no operational difficulties and required a relatively low registration fee, it failed to attract a sufficient number of trading partners and banks to survive. The reasons given for its failure include: (1) the potential high cost of registry operations' insurance, especially since the participants' liability had not been established; (2) the unwillingness of commodity traders to record their transactions in a central registry subject to inspection by competitors and tax authorities; (3) the reticence by the ultimate buyers of spot crude oil to acquire bills of lading from an entity designed to service intermediaries and speculators; and (4) the banks' discomfort with the exclusive control of the registry business by one of their competitors. [34/]

2. The CMI Rules for Electronic Bills of Lading

73. The CMI Rules for Electronic Bills of Lading ("the CMI Rules") were adopted in 1990 and briefly discussed by the Working Group at its twenty-fourth session, in 1992. The main feature of the CMI Rules is the creation of an electronic bill of lading by the carrier who also acts as an unofficial registry of negotiations. The CMI Rules are not intended to displace substantive laws governing bills of lading, such as the Hamburg Rules or the Hague Rules. They "are intended to fill gaps in existing master and individual agreements and trading partner rules, and to provide norms to facilitate the enforceability of telecommunications in jurisdictions reluctant to accept such communications as binding." [35/] A brief overview of the mechanics of the CMI Rules follows.

74. The CMI Rules are contractual in nature. First, parties must agree that the Rules apply to their transactions. Then, after the carrier has confirmed the shipper's "booking note" specifying the shipper's requirements and after the shipper has delivered the goods to the carrier, the carrier issues a receipt for the goods. That receipt is in the form of a "receipt message" transmitted to the shipper's electronic address. The receipt message contains the description of the quantity, quality and condition of the goods, the date and place of receipt of the goods and a reference to the carrier's terms and conditions of carriage. Together with the receipt, the carrier transfers to the shipper a secret code ("private key") to be used for securing the authenticity and integrity of any future instruction to the carrier regarding the goods. The private key can be any technically appropriate code, such as a combination of numbers or letters that the parties might agree on. The party who possesses a valid Private Key is the "holder" and, by virtue of being the holder of the private key, has the "right of control and transfer" over the goods, i.e., the exclusive right to claim delivery of the goods, to nominate a consignee, to transfer ownership or any of the holder's rights to another party, and instruct the carrier on any other subject concerning the goods.

75. Immediately after receiving the receipt message, the shipper must confirm to the carrier agreement with the description of the goods in the receipt. The shipper does not become the holder until that confirmation is sent. For the transfer of the right to control and transfer the following steps are necessary: a notification from the current holder of the private key to the carrier of the intention to transfer to another person the right of control and transfer; the carrier's confirmation of that notification; the carrier's transmission to the proposed new holder of the description of the goods; notification by the proposed new holder to the carrier of acceptance of the description of the goods; and cancellation by the

carrier of the current private key and issuance of a new private key to the new holder. The new holder of the private key can then transfer its rights regarding the goods to a new holder following the same steps. At the port of destination, the carrier must deliver the goods in accordance with the delivery instructions as verified by the private key.

76. It should be noted that the private key is unique to each successive holder. The previous holder does not transfer its private key to the subsequent holder. The carrier acts as a central registry and cancels the previous private key before issuing a new one to the new holder. Furthermore, it should be noted that mere possession of the currently valid private key is not sufficient to transfer the right of control and transfer. The carrier, in communicating with the holder of the key, also verifies whether the instruction for transfer was given by the person identified by the previous holder. Such verification of identity is done by electronic means of authentication in addition to the private key.

77. It has been noted that, to date, the CMI Rules "represent the best attempt to implement negotiable electronic bills of lading. They are not without shortcomings, however. First, they fail to provide a way to readily determine the date and place of the issuance of the bill of lading. As a result, questions of choice of law and jurisdiction are especially difficult to resolve. Second, the Rules fail to address the allocation of liability for a systems breakdown or failure. Third, the Rules place excessive responsibility on the carrier. The carrier must 'acknowledge receipt of the goods, confirm notification of intended transfer of control, transmit information to a proposed new holder, receive the new holder's acceptance message, cancel the old Private Key and issue the new one, notify the holder of the place and date of delivery, and deliver the goods.' [36/] The Rules do not specify the liability that accompanies this responsibility. Without clear apportionment of liability, carriers undoubtedly will be hesitant to assume responsibilities of such magnitude".

78. The following doubts have been expressed as to whether the Private Key procedure can legally function as a transferable bill of lading: "The buyer by his acceptance of the receipt message obtains rights in the goods and becomes the new holder. The carrier issues a new private key to the buyer on the assumption that the buyer accepted a genuine receipt message. If a fraudulent receipt message is sent, the buyer may have 'accepted nonexisting rights'. Therefore, 'the rights incorporated into the private key ... depend not only on the lawful acquisition of the private key, but also on the text of the carrier's valid receipt message'. It is doubtful whether this difficulty may be obviated by a stipulation that the receipt message and the Private Key constitute a negotiable bill of lading, because 'as a rule, the creation of negotiable documents of title is a prerogative reserved solely for the legislature'." [37/]

3. The BOLERO project

79. The initial "Bill of Lading for Europe (BOLERO)" pilot project was funded in part by the European Union in the context of its Infosec Program (DGXIII) and in part through commercial partners. It constitutes one of the latest attempts "to replicate the negotiable bill of lading electronically by employing sophisticated electronic security measures". According to the authors of the project, "In handling all additional trade documentation BOLERO offers the shipping world the opportunity to have completely paperless systems with attendant cost savings and customer service improvements". The pilot project started in April 1994. It involved 8 trading chains from Europe to the United States and Hong Kong, with a total of 26 pilot users, and operated on a trial basis from July to September 1995. The objective of the project was to test "the technical, security, and legal aspects of providing bills of lading in an electronic format".

80. The BOLERO pilot project was based on international standards such as X.400 telecommunications standard, X.500 Directory standard and EDIFACT messaging and also the CMI Rules for electronic bills of lading. The BOLERO system relies on a store-and-forward messaging system, with users communicating with each other through a central registry application with standard EDI messages. The central registry holds a record for each consignment, which is updated when secure

instruction messages are received from the holders of rights to the consignments. In summary, it can be said that the BOLERO combines the procedures established in the CMI Rules with a central registry, where the registry function is performed by an independent operator instead of being performed by the carrier.

81. The potential users of a BOLERO system, including exporters, importers, shipping companies, freight forwarders and banks have formed the BOLERO User Association, intended to be a permanent platform for the development of BOLERO. The BOLERO User Association has expressed its intention to carry the concept forward into a full commercial pilot and, on a successful completion, to commercial implementation. It should be noted that the BOLERO User Association constitutes a closed system where all users agree to conduct their transactions within a single contractual framework. That contractual framework, which "supplements the structure provided by international shipping law" is expressed in a Rule Book which forms part of the statutes of the Association, and is binding on any members trading over the BOLERO system.

III. POSSIBLE ADDITION TO THE UNCITRAL MODEL LAW

A. Joint CMI-UNCITRAL group of experts

82. Pursuant to the mandate received from the Commission, the Secretariat convened a meeting of a joint CMI-UNCITRAL ad hoc group of experts (hereinafter referred to as "the group of experts"). The main purpose of the meeting was to have a preliminary exchange of views to assist the Working Group in its deliberations as to the form and contents of possible future work by UNCITRAL dealing with the removal of legal obstacles to the use of electronic equivalents to bills of lading. The group of experts met in London on 4 and 5 December 1995.

1. Possible scope of future work

83. The mandate given to the Working Group was to work on issues of negotiability and transferability of EDI transport documents, with particular emphasis on EDI maritime transport documents. A first question to be discussed was whether the study to be prepared should cover exclusively the issues of transferable bills of lading or whether it should also cover non-negotiable transport documents, such as "straight bills" and sea waybills. The group of experts took into account the existing trend in many countries among legal writers and law reformers to promote the use of non-negotiable transport documents in trade rather than to address directly the issues of transferability of rights in an electronic context. It was emphasized that non-negotiable transport documents could be adapted to an electronic environment more easily than transferable bills of lading. It was felt that the work of UNCITRAL at this stage should be focused on the transferable bill of lading, which would also provide solutions for the transposition of other transport ducuments in an electronic environment. It was also felt that work on bills of lading would provide an opportunity to consider whether general principles developed for electronic bills of lading could be extended to other transferable or negotiable instruments.

84. When laying the ground for future work in the area of bills of lading, it was borne in mind that the draft legislation or general principles to be prepared should be in line with the draft UNCITRAL Model Law on Legal Aspects of Electronic Data Interchange and Related Means of Communication ("the Model Law") and that future developments on substitutes for bills of lading should, if possible, constitute additional provisions of the Model Law.

85. Another question discussed was whether the purpose of future work in the area of bills of lading was to enable the establishment of closed systems where users would contractually agree on an acceptable substitute for bills of lading in an electronic context, or whether it was feasible to envisage the establishment of a legislative environment where the functions traditionally performed by paper bills

of lading would be available to all EDI users, even in the absence of a specific contractual framework. It was generally agreed that both approaches should, if possible, be taken simultaneously.

86. The group of experts noted that, when attempting to create successful ways of dealing with the issues of electronic communications and bills of lading, three stages needed to be considered. First, it was necessary to remove any current legal impediment to the use of electronic communications. For that purpose, changes needed to be made to existing laws or regulations (which had been made with paper in mind) so that they could apply equally to electronic transactions and to paper-based transactions. In that connection, it was noted that many of existing legal impediments could be removed through an enactment of the general rules contained in the Model Law. However, it was generally agreed that the peculiar nature of bills of lading made it necessary to give them their own individual treatment. Second, it was necessary to invent systems by which transactions could actually take place using electronic means of communication. This result could be achieved through a registry system, where transactions would be recorded and managed through a central authority, or through a technical device based on cryptography. Either the registry system or the technical device would need to provide a reasonable guarantee as to the singularity and the authenticity of the transmitted data, in the case of transactions that would have used transferable or quasi-negotiable documents to transfer rights which were intended to be exclusive. Third, it was necessary to offer to the potential users of such systems solutions that would be sufficiently attractive in terms of cost and security for a critical mass of commercial operators to start using them. While the second and third stages needed to be dealt with predominantly by the potential users and their commercial and technical experts, changes in law that were necessary at the first stage could only result from action by legislators.

87. It was agreed that the difficulties with dealing with the issues of bills of lading in an electronic environment stemmed from provisions contained in most national laws along the lines of article 14(1) of the Hamburg Rules under which "the carrier must, on demand of the shipper, issue to the shipper a bill of lading". When considering the means through which that obligation could be satisfied by the issuance of one or more data messages, consideration was given to the possibility of extending the definition of a "bill of lading" to cover electronic transmissions, in the same way as article 14(3) of the Hamburg Rules had extended the definition of a "signature". It was recalled that the same questions had been discussed by the Working Group in the preparation of the Model Law and that it had been found that an approach based on such an extension of paper-based concepts was generally inappropriate. Any attempt to introduce such concepts as "electronic bill of lading" or "electronic document" would be flawed, since the concepts of "bill of lading" and "document" were rooted in paper-based practice and there existed no strict equivalent to such concepts in an electronic environment. For example, it was stated that the ordinary meaning of the word "document" was clearly not the same as that of a dematerialised series of electronic impulses. While both paper and data messages constituted a medium that could be used to transfer information, their characteristics as a medium varied greatly. Often a complex process was involved in the use of a single document. For example, the delivery of an endorsed bill of lading constituted one action of communication: the handing over of the document. The same process in EDI could involve a multiple exchange of messages. Under CMI Rules, the "delivery" would involve at least two and probably as many as six communicative actions, not any one of which on its own would replicate the delivery of a paper bill of lading but all of which, when completed, would produce the same result as (and therefore constitute a functional equivalent of) the delivery of the paper bill of lading.

88. Having settled on a functional approach, the group of experts proceeded with a review of the actions performed with respect to traditional bills of lading (e.g., "issuing", "signing", "holding", "endorsing", "delivering" and "surrendering"), with a view to determining how equivalent effects could be achieved in an electronic environment. Issuing a signed bill of lading evidenced receipt of the goods and the promise made exclusively to the shipper by the carrier under the contract of carriage to carry the goods and deliver them to the consignee (in the case of a consigned bill of lading), to the last endorsee of a transferable bill of lading, or to anyone who surrenders the bill of lading if the bill of lading was

endorsed "open". Holding a bill of lading was having evidence of exclusive rights and obligations under the contract of carriage in respect of the goods, e.g., the right to claim delivery of the goods, the right of suit against the carrier and the obligations to the carrier in respect of freight, demurrage or storage, as stated in the bill of lading. Endorsing and delivering a bill of lading was renouncing the exclusive right attached to the bill of lading under the contract of carriage and transferring them irrevocably and exclusively to the endorsee. Surrendering the bill of lading was exercising the exclusive right of the holder to claim the goods.

89. The group of experts found that the functions of the bill of lading in the context of the contract of carriage could be performed in an electronic environment (see below, paras. 91-94). As to the effect of the legal regime of traditional bills of lading in the contract of sale, it was recalled that there existed no international convention regarding the transfer of title to goods in transit. While it was generally felt that work in that area might be desirable, it was also felt that no attempt should be made to solve such complex issues in the context of the functional equivalent to a bill of lading.

90. It was agreed, however, that, when establishing a functional equivalent to a document of title, particular attention should be given to preserving the functions served by such a document of title for the purposes of the contract of sale. In certain legal systems, under the doctrine of privity of contract, the consignee would not be able to proceed against the carrier unless the consignee could be considered a party to the contract of carriage. Possession of a bill of lading was a traditional way of overcoming that difficulty in that it gave the consignee a right to claim the goods independently of the shipper (or "right to sue"). Furthermore, without a bill of lading, the seller might not be able to satisfy the requirement under article 58 of the United Nations Sales Convention and corresponding national legislation under which a document controlling the disposition of the goods must be tendered to the buyer to make the buyer liable to pay the price for the goods.

2. Functional equivalent of traditional bills of lading

(a) First two functions: receipt for the cargo and evidence of the contract of carriage

91. In its preliminary discussion of the matter, the Working Group had come to the conclusion that the first two functions could be easily performed by EDI (see above, para. 5). However, with respect to the general terms and other clauses of the contract of carriage, it was noted that the question of incorporation by reference might require further discussion.

(b) Third function: title to the goods

92. It was felt that the main question was to establish the identity of the exclusive holder, or the uniqueness of the message to be relied upon by the carrier for delivering the goods. It seemed that the option was to rely either on some form of registry or on another type of security device. While reliance on a registry was appealing, and was a common characteristic of previous attempts to create electronic bills of lading, it was recalled that these attempts, so far, had not been fully successful. Questions such as the identity of the registrar and the technical feasibility of establishing a worldwide registration system might need to be further discussed by the Working Group.

93. Possible reliance on other security devices might also raise a number of questions. Such a system would presumably involve the use of cryptography and other technical devices. When these questions were discussed in the context of the preparation of both the Model Law and the UNCITRAL Model Law on International Credit Transfers, it was generally agreed that legal rules on issues of electronic data interchange should be "media-neutral", i.e., that they should avoid promoting the use of any particular security measure, thus avoiding the establishment of a link between the effectiveness of the rules and any given state of technical development. Wording such as "appropriate" or "commercially reasonable method of authentication" was intentionally used. While such "media neutrality" might be appropriate

for general rules on EDI, doubts were expressed as to whether useful work could be done in the field of bills of lading without sufficiently detailed references to the technical means through which "originality" or "uniqueness" of an electronic bill of lading would be secured.

94. A concern expressed during the preliminary discussion held by the Working Group was that "the possibility that the message might be fraudulently or mistakenly multiplied could not be excluded". However, it was generally felt by the group of experts that requirements applying to electronic bills of lading should not necessarily be more stringent than existing requirements imposed on paper bills of lading. In that respect, it was recalled that the "possibility" that a paper bill of lading "be fraudulently multiplied" could not be excluded either.

B. Proposal for insertion of additional provisions in the Model Law

95. After discussion, the CMI-UNCITRAL ad hoc group of experts suggested the following provision for consideration by the Working Group:

"Draft Article 'x'. Contracts of Carriage involving data messages

"(1) This Article applies to any of the following actions in connection with or in pursuance of a contract of carriage:

"(a) (i) furnishing the marks, number, quantity or weight of goods;
(ii) stating or declaring the nature or value of goods;
(iii) issuing a receipt for goods;
(iv) confirming that the goods have been loaded;

"(b) (i) notifying a person of terms and conditions of the contract;
(ii) giving instructions to a carrier;

"(c) (i) claiming delivery of goods;
(ii) authorizing release of goods;
(iii) giving notice of loss of, or damage to, goods;

"(d) giving any other notice in connection with the performance of the contract;

"(e) undertaking, irrevocably or not, to deliver goods to a named person or a person authorised to claim delivery;

"(f) granting, acquiring, renouncing, surrendering, transferring or negotiating rights in goods;

"(g) acquiring or transferring rights [, including rights of suit,] and obligations under the contract.

"(2) Where a rule of law requires that, when any action in paragraph (1) is carried out, information be in writing or be presented in writing or in a paper document, in order that a person may acquire or fulfil an obligation or acquire or exercise a right in connection with or in pursuance of a contract of carriage, or provides for certain consequences if the information is not in writing, that rule shall be satisfied if the information is contained in one or more data message.

"(3) If it is intended, through any of the actions in paragraph (1), that a right or obligation is to become exclusively that of one person and if a rule of law requires that, in order to give effect to that intention, information concerning the right or obligation must be communicated to that person in writing or in a paper document, that rule is satisfied if the communication of the information

includes the use of one or more data messages, provided a method is also used to give reliable assurance that the right or the obligation has become that of the intended person and of no other person.

"(4) Where any question is raised as to whether paragraph (3) of this article is satisfied, the standard of reliability required shall be assessed in the light of the purpose for which the communication was made and in the light of all the circumstances, including any agreement between the parties.

"[(5) Where a rule of law requires information in connection with a contract of carriage to be stored, communicated, received or otherwise processed, that rule may be satisfied by operation of a registry or of a database [by one of the parties to the contract of carriage or by a third party].]

"(6) The provisions of this Article do not apply to the following: [...]".

NOTES

[1] Official Records of the General Assembly, Forty-seventh Session, Supplement No. 17 (A/47/17), paras. 140-148.

[2] The Secretariat expresses its gratitude to the Comité Maritime International for its general support of this project and, more particularly for the quality of participation from CMI experts in the joint CMI-UNCITRAL ad hoc group of experts.

[3] The Secretariat is grateful to Professor A.N. Yiannopoulos, Eason-Weinmann Professor of Comparative Law, Tulane Law School, New Orleans, Louisiana, and General Reporter of the Session, for his help in the preparation of this note.

[4] See A.N. Yannopoulos (Editor), Ocean Bills of Lading: Traditional Forms, Substitutes and EDI Systems, (The Hague, Kluwer Law International, International Academy of comparative Law, 1995). The proceedings of the congress also contain national reports of Argentina, Australia, Belgium, Canada, France, Germany, Greece, Italy, Japan, Netherlands, New Zealand, the United Kingdom of Great Britain and Northern Ireland and the United States of America.

[5] See J. Ramberg, "Documentation: sea waybills and electronic transmission", in The Hamburg Rules: a choice for the E.E.C.? (Antwerp, MAKLU-Bruylant-Nomos-Schulthess, 1994), p. 103.

[6] See A.N. Yannopoulos, "General Report" in Ocean Bills of Lading: Traditional Forms, Substitutes and EDI Systems, (A.N. Yannopoulos, editor, The Hague, Kluwer Law International, 1995), p. 13.

[7] See Kurt Grönfors, Towards Sea Waybills and electronic Documents (Göteborg, Maritime Law Association, 1991) p. 8.

[8] See R. Herber, "Current developments concerning the form of bills of lading - Germany", in Ocean Bills of Lading: Traditional Forms, Substitutes and EDI Systems, (A.N. Yannopoulos, editor, The Hague, Kluwer Law International, 1995), p. 162.

[9] See Yannopoulos (above note 6), p. 14.

[10] See Grönfors (above note 7), p. 11-12.

[11] Ibid., p. 12.

[12] Ibid., p.13.

[13] Ibid., p. 13.

[14] See Jan Ramberg, "Electronic transfer of rights to goods in transit", in Trading with EDI - The legal issues (H.B. Thomsen and B.S. Wheble, editors, London, IBC Financial Books, 1989), p. 186.

[15] Ibid., p. 186.

[16] See Yannopoulos (above note 6), p. 17.

[17] Ibid., p. 18.

[18] Commission of the European Communities, The Legal Position of the Member States with Respect to Electronic Data Interchange: Final Report (Sept. 1989), quoted by Amelia H. Boss, The International Commercial Use of Electronic Data Interchange and Electronic Communications Technologies, 46 Bus. Law. 1787, (1991).

19/ For an informative discussion of the nature and function of sea waybills, see "Draft Discussion Paper: Proposals for Reform of Australian Bills of Lading Legislation", prepared by the International trade Law Section of the Attorney General's Department of Australia in conjunstion with the Department of transport and Communications (1993), p. 14 to 16.

20/ See Yannopoulos (above note 6), p.19.

21/ See J.B. Ritter & J.Y. Gliniecki, "International Electronic Commerce and Administrative Law: The Need for Harmonized National Reforms", Harvard Journal of law and Technology, 279 (1993).

22/ Id.

23/ See K. Bernauw, "Current developments concerning the form of bills of lading - Belgium", in Ocean Bills of Lading: Traditional Forms, Substitutes and EDI Systems, (A.N. Yannopoulos, editor, The Hague, Kluwer Law International, 1995), p. 114.

24/ CMI Rules, article 7(d).

25/ See B. Kozolchyk, "Evolution and Present State of the Ocean Bill of lading from a Banking Law Perspective" Journal of Maritime law and Commerce, Vol. 23 (1992), p. 240.

26/ See Yannopoulos (above note 6), p. 38.

27/ Ibid., p. 39.

28/ Id.

29/ Ibid., p. 40.

30/ Id.

31/ In the United kingdom, the Carriage of Goods by Sea Act 1992 empowers the Secretary of State to make provisions for the application of the Act to cases where a telecommunication system is used for effecting transactions.

32/ See Yannopoulos (above note 6), p.41.

33/ See Boris Kozolchyk (above note 24), p. 161, and Robert P. Merges & Glenn H. Reynolds, "Toward a Computerized System for Negotiating Ocean Bills of Lading", The journal of Law and Commerce, Vol. 6 (1986), p. 23 to 36.

34/ See Yannopoulos (above note 6), p. 22 to 24.

35/ See Kozolchyk (above note 24), p. 230.

36/ See Yannopoulos (above note 6), p. 29.

37/ Id.